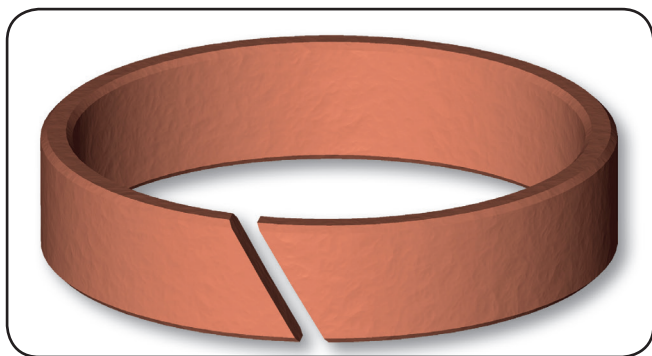
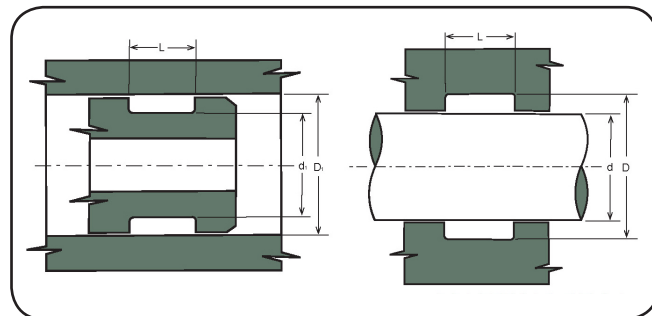




ROD AND PISTON GUIDE RING



MAIN FEATURES

The GRF type guide ring is developed to replace the traditional bronze guide in the hydraulic cylinder. The rod and piston guide prevents metallic contact with the cylinder head, there being a radial force that ensures the perpendicular direction to the motion. Since the GRF is obtained by turning, the thickness is manufactured with a very precise tolerance.

The material used in this guide is a phenolic resin in natural cotton, characterised by its high resistance and high heavy load, stiffness, hardness and high temperature stability.

- ° Excellent resistance to high heavy loads
- ° High guide precision
- ° High resistance to the 'diesel effect'
- ° Long operating life
- ° Adapted to be rod or piston guide
- ° Good mechanical stability at high temperature

GRF

DESCRIPTION

Cut piston and rod guide ring.

DYNAMIC SURFACE MATERIAL

Phenolic resin with natural cotton.

OPERATING CONDITIONS

Speed: < 1 m/sec.

Temperature: - 40 to + 130°C

Permissible Loads: < 90 N/mm² at 20°C

Fluid: Hydraulic oil
(mineral based)

Hydraulic oil HL, HLP

Pressure fluids

HFA, HBF, HFC, HFD

• Radial load: Under normal lubrication conditions and speed is up to 30 m/min.

The maximum radial load can be calculated by the formula : $P = D \times E \times PS$

P (Kg) maximum radial load

D (cm) diameter of the guide subject to motion

E (cm) guide width

PS (Bar) 370 Bar (ASTM D.695)

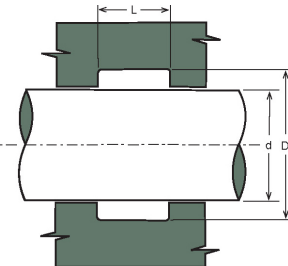
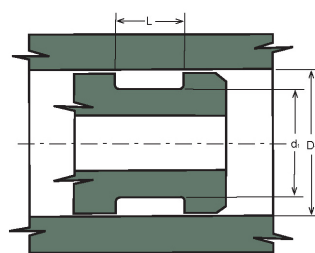
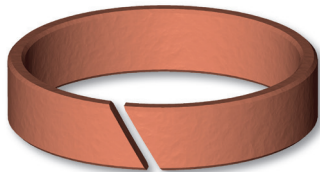
maximum permissible load for the material

SURFACE ROUGHNESS

Dynamic surface $Ra < 0.3 \mu m$ $Rt < 2.5 \mu m$

Static surface $Ra < 2 \mu m$ $Rt < 10 \mu m$

GRF



Size	Piston Rod	d 1 h8 d f8	D 1 H9 D H8	L + 0.2
GRF 20		20.00	25.00	9.70
GRF 25		25.00	30.00	9.70
GRF 27		27.00	32.00	9.70
GRF 30		30.00	35.00	9.70
GRF 35		35.00	40.00	9.70
GRF 36		36.00	41.00	9.70
GRF 36A		36.00	41.00	15.00
GRF 37		37.00	42.00	9.70
GRF 40		40.00	45.00	9.70
GRF 45		45.00	50.00	9.70
GRF 50		50.00	55.00	9.70
GRF 50A		50.00	55.00	15.00
GRF 55		55.00	60.00	9.70
GRF 55A		55.00	60.00	15.00
GRF 56		56.00	61.00	9.70
GRF 58		58.00	63.00	9.70
GRF 58A		58.00	63.00	15.00
GRF 60		60.00	65.00	9.70
GRF 60A		60.00	65.00	15.00
GRF 63		63.00	68.00	9.70
GRF 65		65.00	70.00	9.70
GRF 65A		65.00	70.00	15.00
GRF 70		70.00	75.00	9.70
GRF 70A		70.00	75.00	15.00
GRF 75		75.00	80.00	9.70
GRF 75A		75.00	80.00	15.00
GRF 80		80.00	85.00	9.70
GRF 80A		80.00	85.00	15.00
GRF 85		85.00	90.00	9.70
GRF 85A		85.00	90.00	15.00
GRF 90		90.00	95.00	9.70
GRF 90A		90.00	95.00	15.00
GRF 94		94.00	99.00	9.70
GRF 95		95.00	100.00	9.70
GRF 95A		95.00	100.00	15.00
GRF 100		100.00	105.00	9.70
GRF 100A		100.00	105.00	15.00
GRF 105		105.00	110.00	9.70

Size	Piston Rod	d 1 h8 d f8	D 1 H9 D H8	L + 0.2
GRF 105A		105.00	110.00	15.00
GRF 110		110.00	115.00	9.70
GRF 110A		110.00	115.00	15.00
GRF 115		115.00	120.00	9.70
GRF 115A		115.00	120.00	15.00
GRF 120		120.00	125.00	9.70
GRF 120A		120.00	125.00	15.00
GRF 125		125.00	130.00	9.70
GRF 125A		125.00	130.00	15.00
GRF 130		130.00	135.00	9.70
GRF 130A		130.00	135.00	15.00
GRF 135		135.00	140.00	9.70
GRF 135A		135.00	140.00	15.00
GRF 140		140.00	145.00	9.70
GRF 140A		140.00	145.00	15.00
GRF 145		145.00	150.00	9.70
GRF 145A		145.00	150.00	15.00
GRF 150		150.00	155.00	9.70
GRF 150A		150.00	155.00	15.00
GRF 155		155.00	160.00	9.70
GRF 155A		155.00	160.00	15.00
GRF 160		160.00	165.00	9.70
GRF 160A		160.00	165.00	15.00
GRF 165A		165.00	170.00	15.00
GRF 170		170.00	175.00	9.70
GRF 170A		170.00	175.00	15.00
GRF 175		175.00	180.00	9.70
GRF 175A		175.00	180.00	15.00
GRF 180		180.00	185.00	9.70
GRF 180A		180.00	185.00	15.00
GRF 185		185.00	190.00	9.70
GRF 185A		185.00	190.00	15.00
GRF 190A		190.00	195.00	15.00
GRF 195		195.00	200.00	9.70
GRF 195A		195.00	200.00	15.00
GRF 200A		200.00	205.00	15.00
GRF 240A		240.00	245.00	15.00
GRF 255A		255.00	260.00	15.00